

1. A method of clarifying industrial laundry wastewater containing surfactants, fats, oil and grease (FOG), total petroleum hydrocarbon (TPH) biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), ionized metals and other contaminants, without the use of additional coagulants, flocculents, coagulant aids, flocculent aids or sludge conditioning aids, and allowing for the correct dewatering of the sludge using a plate and frame sludge press, comprising the steps of:

(a) adding to the wastewater an effective amount of a water dispersed cationic blend whose major components are of pDADMAC and ACH, between 50 ppm and 700 ppm to break the emulsified bond in the wastewater and produce coagulated particles having sufficient mass and cationic charge to react with an anionic flocculent to be added thereafter;

(b) delaying any flocculent addition by at least a predetermined time to permit the cationic coagulant blend to substantially complete the coagulation of the particles in the wastewater in step (a);

(c) adding to the wastewater an effective amount of an aqueous anionic flocculent, between 5 ppm and 50 ppm, of sufficient molecular weight and charge density to react with the cationic charged coagulated particles to form flocculated waste particles of effective size to form sludge while leaving a disposable clarified water, thereby lowering the amount of sludge generated by at least 30% of that normally generated using existing coagulation and flocculation techniques of adding additional coagulants, flocculents, coagulant aids, flocculent aids or sludge aids, including but not limited to, poly aluminum chloride, epi-amine coagulant, bentonite clay, perlite, ferrous sulfate, ferric chloride diatomaceous earth and others;

(d) separating the sludge from the clarified water;

(e) passing the sludge to a plate and frame sludge press; and

(f) dewatering the sludge by the press, thereby forming a disposable sludge cake;

(g) disposing of the sludge cake and the clarified water.

2. The method of claim 1 wherein the predetermined time in step (b) is two seconds.
3. The method of claim 1 wherein the cationic blend is 20% pDADMAC and 20% ACH.
4. The method of claim 1 wherein the anionic flocculent is essentially poly(acrylamide-co-acrylate).
5. The method of claim 1 wherein the anionic flocculent is dry, further comprising the step of:
  - (g) wetting the flocculent to a solution strength of between 0.05 and 0.5% prior to the adding step (c).
6. The method of claim 1 wherein the predetermined time in step (b) is two seconds and the anionic flocculent is essentially poly(acrylamide-co-acrylate) added as a wetted solution having a strength of between 0.05 and 0.5% prior to adding in step (c).
7. The method of claim 1 further comprising the step of:
  - (g) disposing of the water from the dewatering step (f).
8. The method of claim 1 wherein the anionic flocculent is dry, further comprising the step of:
  - (g) wetting the flocculent to a solution strength of 0.2% prior to the adding step (c).
9. The method of claim 1 wherein the predetermined time in which step (b) is two seconds, the cationic blend is 20% pDADMAC and 20% ACH and the anionic flocculent is essentially a dry poly(acrylamide-co-acrylate), further comprising the steps of:
  - (g) wetting the flocculent to a solution strength of between 0.05 and 0.5% prior to the adding step (c); and
  - (h) disposing of the water from the dewatering step (f).

10. A method of clarifying industrial laundry wastewater containing surfactants, fats, oil and grease (FOG), total petroleum hydrocarbon (TPH) biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), ionized metals and other contaminants, without the use of additional coagulants, flocculents, coagulant aids, flocculent aids or sludge conditioning aids, and allowing for the correct dewatering of the sludge using a plate and frame sludge press, consisting essentially of the steps of:

(a) adding to the wastewater an effective amount of a water dispersed cationic blend whose major components are of DADMAC and ACH, between 50 ppm and 700 ppm to break the emulsified bond in the wastewater and produce coagulated particles having sufficient mass and cationic charge to react with an anionic flocculent to be added thereafter;

(b) delaying any flocculent addition by at least a predetermined time to permit the cationic coagulant blend to substantially complete the coagulation of the particles in the wastewater in step (a);

(c) adding to the wastewater an effective amount of an aqueous anionic flocculent, between 5 ppm and 50 ppm, of sufficient molecular weight and charge density to react with the cationic charged coagulated particles to form flocculated waste particles of effective size to form sludge while leaving a disposable clarified water;

(d) separating the sludge from the clarified water;

(e) passing the sludge to a plate and frame sludge press;

(f) dewatering the sludge by the press, thereby forming a disposable sludge cake;

and

(g) disposing of the sludge cake and the clarified water.

11. The method of claim 10 wherein the predetermined time in step (b) is two seconds.

12. The method of claim 10 wherein the cationic blend is 20% pDADMAC and 20% ACH.

13. The method of claim 10 wherein the anionic flocculent is essentially poly(acrylamide-co-acrylate).

14. The method of claim 10 wherein the anionic flocculent is dry, further consisting essentially of the step of:
- (g) wetting the flocculent to a solution strength of between 0.05 and 0.5% prior to the adding step (c).
15. The method of claim 10 wherein the predetermined time in step (b) is two seconds and the anionic flocculent is essentially poly(acrylamide-co-acrylate) added as a wetted solution having a strength of between 0.05 and 0.5% prior to adding in step (c).
16. The method of claim 10 further consisting essentially of the step of:
- (g) disposing of the water from the dewatering step (f).
17. The method of claim 10 wherein the anionic flocculent is dry, further consisting essentially of the step of:
- (g) wetting the flocculent to a solution strength of 0.2% prior to the adding step (c).
18. The method of claim 10 wherein the predetermined time in which step (b) is two seconds, the cationic blend is 20% pDADMAC and 20% ACH and the anionic flocculent is essentially a dry poly(acrylamide-co-acrylate), further consisting essentially of the steps of:
- (g) wetting the flocculent to a solution strength of between 0.05 and 0.5% prior to the adding step (c); and
  - (h) disposing of the water from the dewatering step (f).
19. A method of clarifying industrial laundry wastewater containing surfactants, fats, oil and grease (FOG), total petroleum hydrocarbon (TPH) biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), ionized metals and other contaminants, without the use of additional coagulants, flocculents, coagulant aids, flocculent aids or sludge conditioning aids, and allowing for the correct dewatering of the sludge using a plate and frame sludge press, consisting of the steps of:
- (a) adding to the wastewater an effective amount of a water dispersed cationic blend whose major components are of DADMAC and ACH, between 50 ppm and 700 ppm to

break the emulsified bond in the wastewater and produce coagulated particles having sufficient mass and cationic charge to react with an anionic flocculent to be added thereafter;

(c) delaying any flocculent addition by at least a predetermined time to permit the cationic coagulant blend to substantially complete the coagulation of the particles in the wastewater in step (a);

(c) adding to the wastewater an effective amount of an aqueous anionic flocculent, between 5 ppm and 50 ppm, of sufficient molecular weight and charge density to react with the cationic charged coagulated particles to form flocculated waste particles of effective size to form sludge while leaving a disposable clarified water;

(d) separating the sludge from the clarified water;

(e) passing the sludge to a plate and frame sludge press;

(f) dewatering the sludge by the press, thereby forming a disposable sludge cake;

and

(g) disposing of the sludge cake and the clarified water.

20. The method of claim 19 wherein the predetermined time in step (b) is two seconds.

21. The method of claim 19 wherein the cationic blend is 20% pDADMAC and 20% ACH.

22. The method of claim 19 wherein the anionic flocculent is essentially poly(acrylamide-co-acrylate).

23. The method of claim 19 wherein the anionic flocculent is dry, further consisting of the step of:

(g) wetting the flocculent to a solution strength of between 0.05 and 0.5% prior to the adding step (c).

24. The method of claim 19 wherein the predetermined time in step (b) is two seconds and the anionic flocculent is essentially poly(acrylamide-co-acrylate) added as a wetted solution having a strength of between 0.05 and 0.5% prior to adding in step (c).
25. The method of claim 19 further consisting of the step of:  
(g) disposing of the water from the dewatering step (f).
26. The method of claim 19 wherein the anionic flocculent is dry, further consisting of the step of:  
(g) wetting the flocculent to a solution strength of 0.2% prior to the adding step (c).
27. The method of claim 19 wherein the predetermined time in which step (b) is two seconds, the cationic blend is 20% pDADMAC and 20% ACH and the anionic flocculent is essentially a dry poly(acrylamide-co-acrylate), further consisting of the steps of:  
(g) wetting the flocculent to a solution strength of between 0.05 and 0.5% prior to the adding step (c); and  
(h) disposing of the water from the dewatering step (f).